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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/586,173
Filing Date: July 17, 2006
Appellant(s): KAWABATA ET AL.

Lawrence Ashery
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 03/02/2012 appealing from the Office action mailed 10/04/2011

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1 and 3-9 are pending; claims a and 3-9 have been rejected.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

7,404,701	Kwon et al	03-2006
5,799,626	Ponsford et al	09-1998
4,101,414	Kim et al	07-1978
5,108,634	Seiki	04-1992
6,054,224	Nagai et al	04-2000
2006/0166844	Egawa et al	07-2006
4,252,506	Hannibal	02-1981
6,940,204	Yamakazi et al	09-2005

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Ponsford et al (US Patent No. 5,799,626) in view of Kim et al (US Patent No. 4,101,414).

Kwon teaches:

limitations from claim 1, a refrigerant compressor (FIG. 2) comprising: a hermetic container (24) which internally stores oil (62) and also accommodates a compression mechanism (28) for compressing refrigerant gas (C. 4 Lines 11-20), wherein the oil is between a viscosity grade not lower than ISO VG3 to a viscosity grade not higher than ISO VG 8 (C. 3 Lines 38-40);

Furthermore, it would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use an oil within the range of claim 1, as suggested by Kwon for the reasons stated above (lubrication, reduced sludge,

etc), since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum value or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Kwon does not teach that the oil is a blended oil.

Ponsford teaches:

limitations from claim 1, a blended oil consisting of multiple components; a first component oil having a boiling point at 350 degrees Celsius or more (portion 5-6 from Table 1), and a second component having a boiling point of 300 degrees Celsius or less (portion 4 from Table 1); the specific ratios of the component oils are not explicitly taught, however Ponsford does teach that any ratio can be chosen to constitute a blended oil (C. 6 Lines 50-65); the viscosity of the oil is not specifically disclosed, rather it is compared to existing light oils, i.e. diesel (C. 5 Lines 24-30); existing diesels are known to be within a viscosity range of VG3-VG8 (Kim is cited as a teaching reference, C. 4 Lines 16-19 disclose a viscosity of 50-56 SSU at 100 degrees Fahrenheit which converts to below VG8); Thus Ponsford teaches a blend of component oils each having the characteristics recited in claim 1, forming a final oil with a viscosity as in claim 1, that is suggested for use in lubrication and refrigeration systems (C. 7 Lines 57-64);

It would have been obvious to one of ordinary skill in the art of compressors at the time of the invention to use the oil blend taught by Ponsford in the compressor of Kwon, in order to provide a lubricant having desirable properties over varying temperatures, consistent viscosity and a rust inhibition (C. 7 Lines 16-30 of Ponsford).

Kwon, Ponsford and Kim disclose and teach of the refrigerant compressor in claim 1.

Kwon further teaches:

limitations from claim 3, wherein the refrigerant is R600a (C. 5 Lines 31-46) and the oil is a mineral oil or synthetic (C. 5 Lines 50-55);

limitations from claim 5, wherein the compression mechanism is a reciprocating mechanism (C. 4 Lines 11-20);

Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Ponsford et al (US Patent No. 5,799,626) in view of Kim et al (US Patent No. 4,101,414) as applied to claims 1, 3, 5 above, and in further view of Seiki (US Patent No. 5,108,634).

Neither Kwon, Ponsford nor Kim teaches that the oil is provided with a phosphorous extreme pressure additive, but Seiki does.

Seiki teaches:

limitations from claim 4, wherein phosphorous extreme pressure additive is added to a refrigerant oil (C. 3 Lines 49-51 and C. 4 Lines 13-17);

It would have been obvious to one having ordinary skill in the art of compressors to use a pressure additive as is taught by Seiki in the compressor taught by Kwon and modified by Ponsford and Kim, in order to increase the effectiveness of the oil in under pressures created by the compressor.

Claims 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Ponsford et al (US Patent No. 5,799,626) in view of Kim et al (US Patent No. 4,101,414) as applied to claims 1, 3 and 5 above, and in further view of Nagai et al (US Patent No. 6,054,224).

Kwon teaches:

limitations from claim 6, an electric motor (FIG. 2 (26) C. 4 Lines 14-15), for driving a compression mechanism (28);

Neither Kwon nor Ponsford nor Kim teaches that the motor uses a low oligomer insulating material, but Nagai does.

Nagai teaches:

limitations from claim 6, an insulating material for an electric motor having low amounts of oligomers, for use in refrigeration systems, specifically compressors (C. 1 Lines 5-15);

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to use low oligomer type insulation on the motor of the compressor taught by Kwon and modified by Ponsford and Kim, in a manner as taught by Nagai, in order to reduce the environmental damage caused by the compressor (C. 1 Lines 10-15 and Lines 42- 45 of Nagai).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Ponsford et al (US Patent No. 5,799,626) in view of Kim et al (US Patent No. 4,101,414) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 3, 5 and 6 above, and in further view of Egawa et al (US PGPub No. 2006/0166844 A1).

Kwon, Ponsford, Kim and Nagai disclose and teach of the compressor in claims 1 and 6.

Neither Kwon nor Ponsford nor Kim nor Nagai discusses evaporation temperature, but Egawa does.

Egawa teaches in Page 1 paragraphs [0001, 0002, 0007-0009] of a lubricating oil composition having low evaporation loss and low viscosity; paragraph [0002]

teaches specifically that combinations of oils having different evaporation temperatures results in unwanted viscosity levels; paragraph [0008] further teaches that kinematic viscosity is related to the evaporation losses of an oil;

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to seek a consistent evaporation temperature across the oil composition in order to accurately control the properties (viscosity) of the oil during use. Furthermore, because the kinematic viscosity is directly related to the evaporation of the oil, it is obvious that oils within a small range of viscosities would likely have similar evaporation temperatures.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Ponsford et al (US Patent No. 5,799,626) in view of Kim et al (US Patent No. 4,101,414) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 3, 5 above, and in further view of Hannibal (US Patent No. 4,252,506).

Kwon, Ponsford, Kim and Nagai teach and disclose of the compressor in claims 1 and 6. Kwon teaches an electric motor (26) with windings (FIG. 2 (42) C. 4 Lines 30-31);

Neither Kwon, Ponsford, Kim nor Nagai explicitly teach a distributed winding, but Hannibal does.

Hannibal teaches:

limitations from claims 8 and 15, an electric motor (FIG. 3 (16) C. 3 Line 22), in a compressor (FIG. 3 (10) C. 3 Lines 20-21), wherein the motor is a distributed winding motor (C. 5 Lines 8-11);

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention to substitute the winding structure taught by Hannibal and as is known in the art into the compressor motor of Kwon as modified by Ponsford, Kim and Nagai, in order to achieve predictable results in meeting the driving demands of the compressor and system.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US Patent No. 7,404,701 B2) in view of Ponsford et al (US Patent No. 5,799,626) in view of Kim et al (US Patent No. 4,101,414) in view of Nagai et al (US Patent No. 6,054,224) as applied to claims 1, 3, 6 and 13 above, and in further view of Yamazaki et al (US Patent No. 6,940,204 B2).

Kwon, Ponsford, Kim and Nagai teach and disclose of the compressor in claims 1 and 6. Kwon teaches an electric motor (26) with windings (FIG. 2 (42) C. 4

Lines 30-31);

Neither Kwon, Ponsford, Kim nor Nagai explicitly teach a concentrated winding, but Yamazaki does.

Yamazaki teaches:

limitations from claim 9, wherein an electric motor for a compressor is a concentrated winding motor (C. 1 Lines 15-19 and 27-37);

It would have been obvious to one having ordinary skill in the art of compressors at the time of the invention substitute the winding structure taught by Yamazaki into the compressor motor of Kwon as modified by Ponsford, Kim and Nagai, to achieve predictable results in reducing the size of the motor and compressor (C. 1 Lines 27-37 of Yamazaki).

(10) Response to Argument

Appellant's independent claim 1 calls for a hermetic container of a refrigerant compressor, wherein the container stores a blended oil. The blended oil is further described as a combination of two oils, each of which have characteristics unique to the single component oils. The characteristics include boiling point ranges and volume ratios. The combination of the two oils results in a blended oil having a specified viscosity grade. Kwon is provided as the base reference in order to teach the general construction of a refrigerant compressor, and that oils are commonly known to be stored in the containers of refrigerant-type compressors. Kwon lacks a detailed description of

the oil used within the compressor. Ponsford has been relied upon to disclose and teach what Kwon lacks, specifically a blended oil with characteristically defined component oils. Ponsford teaches multiple oils in various ratios, each oil having a different set of characteristics such as boiling point and volume within the blended oil. Two of the oils taught in the blended oil of Ponsford's disclosure have boiling points within the ranges required by the limitations of claim 1. It is further taught that ratios of the component oils within the blended oil can be varied to any mixture ratios. The final blended oil of Ponsford is taught to have a viscosity similar to that of light diesel oils, which are known to have viscosity levels within the range required by limitations of claim 1, as evidenced by Kim.

Appellant argues that the portion of Kwon cited to suggest a correlation between negative lubricant interaction with the compressor (i.e. sludge) is not sufficient to support the rejection. The examiner respectfully disagrees. The portion of Kwon (C. 15-34) cited in the arguments of the final rejection appear to teach that a viscosity of oils used in compressors of the refrigerant type are related to the possible formation of sludge in the compressor mechanisms. Specifically Kwon states "Namely the lubricant used as the refrigerant oil of the reciprocating compressor...should have a high level thermal stability so as not to generate a carbon sludge or not to be oxidized at a high temperature part of the compressor", and "In order to satisfy those characteristics, characters of the lubricant, such as kinematic viscosity...work as critical factors". Therefore there appears to be an understanding that viscosity in oils is related to the

performance of the oil during use in compressors. Furthermore, it is noted that both Kwon and Ponsford teach lubricant oils including a viscosity within the claimed ranges.

Appellant argues that the oil taught by Ponsford is a specialty oil and cannot be extrapolated to apply to other oils. However, even if this is true, it does not preclude the oil taught by Ponsford from being used as a compressor lubricant in place of, or in combination with other oils. The rejection as presented does not require the characteristics of the oil to be extrapolated onto other oils in the art. The appellant argues that aromatic oils such as those taught by Ponsford have characteristics that are not preferred for use as lubricants, because of high viscosities. However, the rejection above cites passages in Ponsford that teach a viscosity within the range of the limitations of claim 1; and further suggest that aromatic oils can in fact be used for pump lubricating purposes (C. 7 Lines 57-64). The examiner further disagrees with the appellants interpretation of the passage cited in Ponsford regarding viscosity ranges. Appellant suggests that the sentence reading "The mixture of aromatic hydrocarbon compounds called styrene oil herein is a liquid at room temperature, and physically resembles diesel oil in appearance, varying in color from light yellow to brown, depending on the presence of trace compounds" should be interpreted to also effect the interpretation of the following sentence stating "It is roughly similar to light oils in viscosity and boiling point, and is useful for many purposes as disclosed herein". The examiner contends that each of the sentences needs to be considered separately, as the fact that boiling point and viscosity (physical characteristics) are addressed separately from color (visual) suggests. The examiner agrees with the appellant that a

trait such as boiling point/viscosity is not something that can be determined visually, which further supports the examiners assertion that the comparisons between the oil and diesel in each sentence are intended as separate observations (one visual and one physical).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Christopher Bobish/

Examiner, Art Unit 3746

Conferees:

/Devon C Kramer/

Supervisory Patent Examiner, Art Unit 3746

/Sue Lao/

Primary Examiner